

The following charts and tables that support the nine key implementation factors can be found within [the complete Project Red document](#) and are copyright Greaves, T.; Hayes, J.; Wilson, L; Gielniak, M.' & Peterson, R., titled *The Technology Factor: Nine Keys to Student Achievement and Cost-Effectiveness*, MDR 2010.

**Chart 3.2. 1:1 Schools experience greater savings**

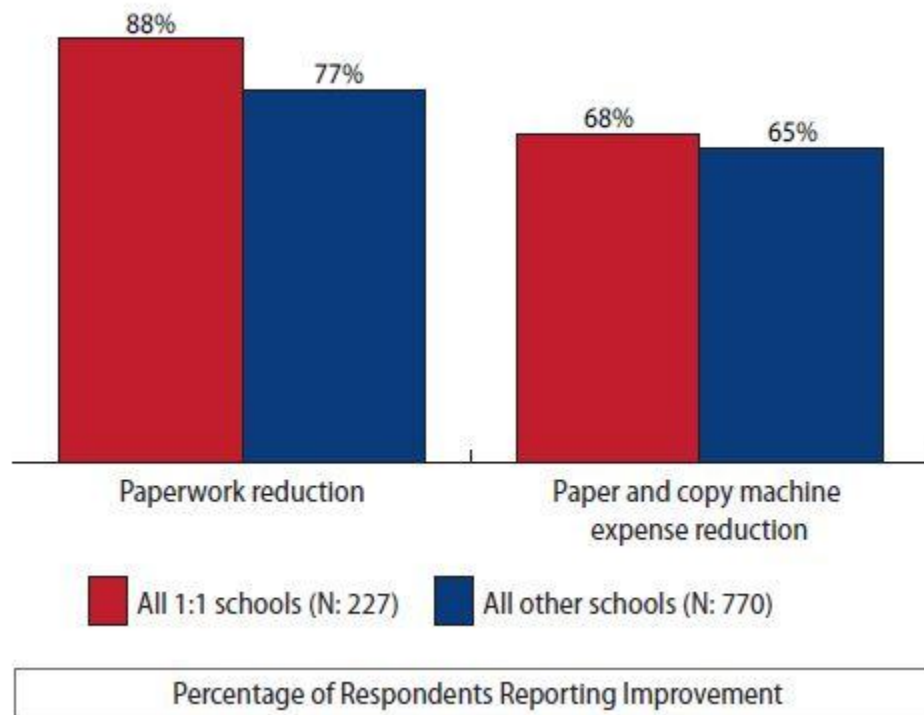


Chart 3.5. Technology-transformed intervention classes lead to education success

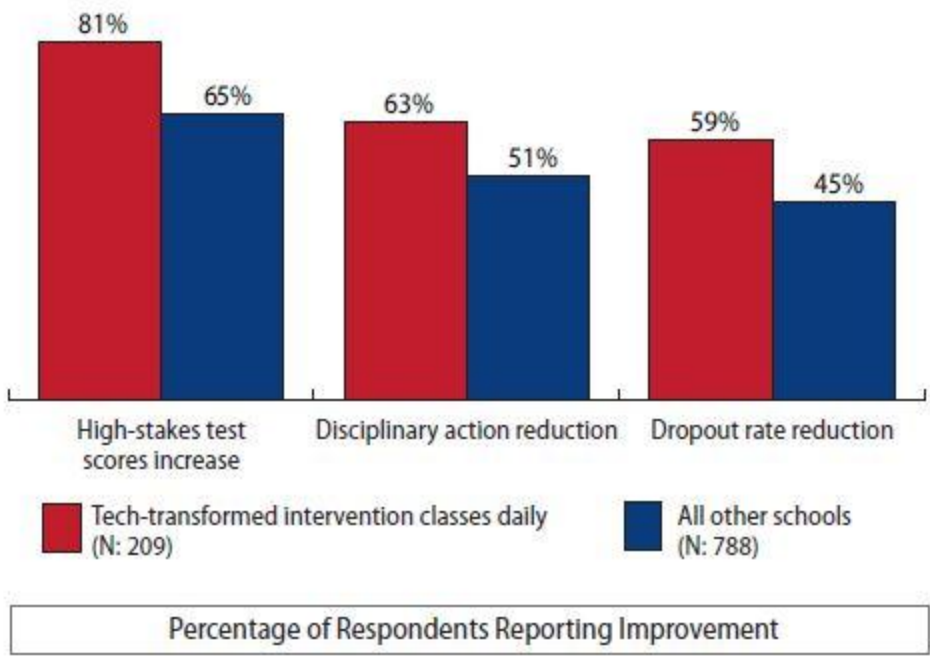


Chart 3.6. Online collaboration Increases student engagement

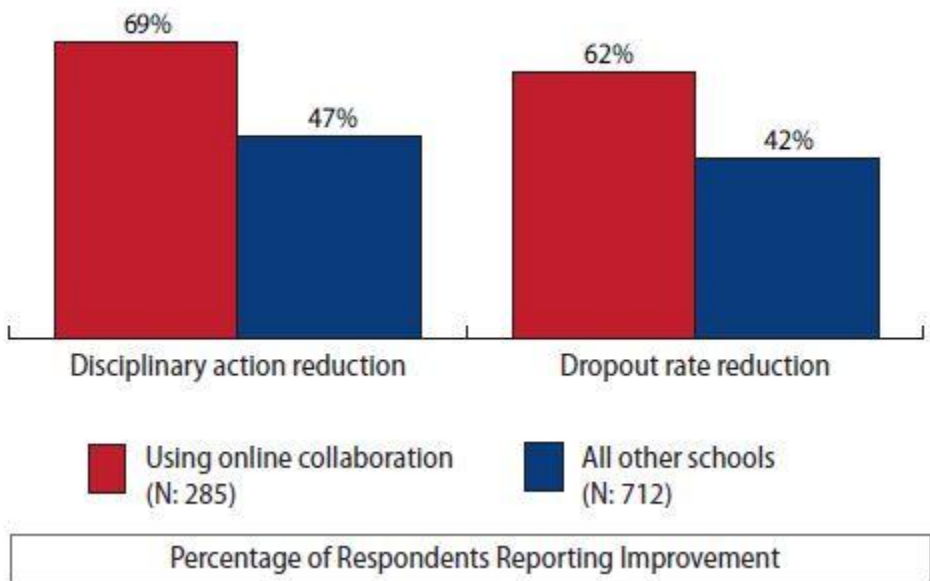
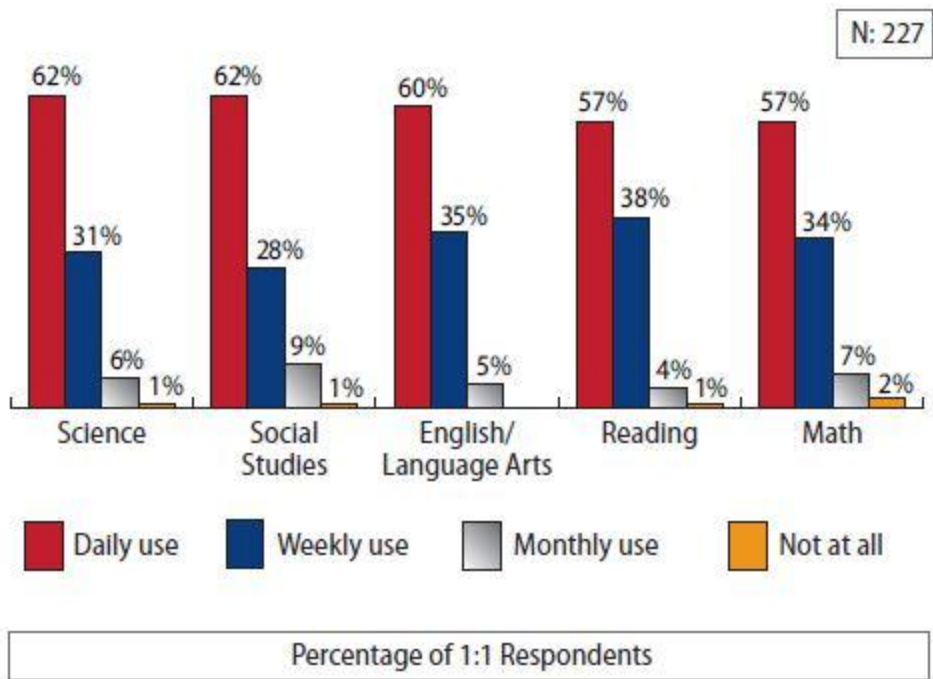
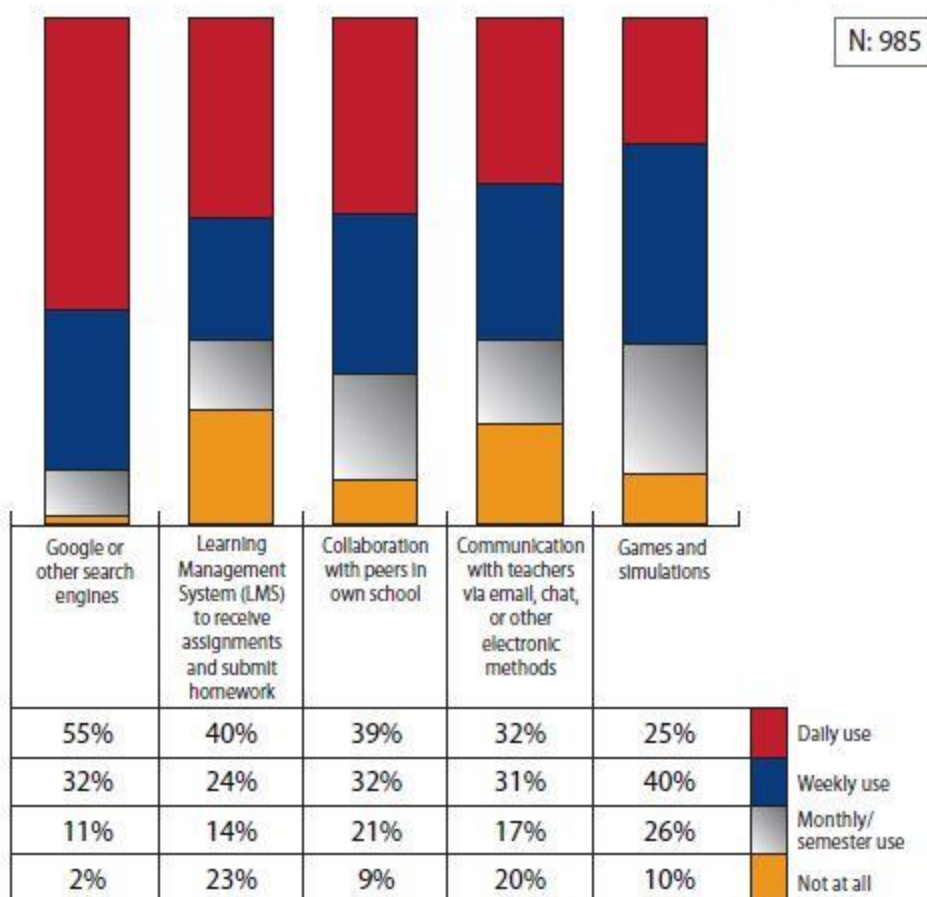


Chart 3.7. Use of digital content by 1:1 schools



**Chart 4.1. How frequently do you expect your students to use technology in the following activities? (Q17)**

Technology Tools Used: Top 5 Principal's Frequency Expectations



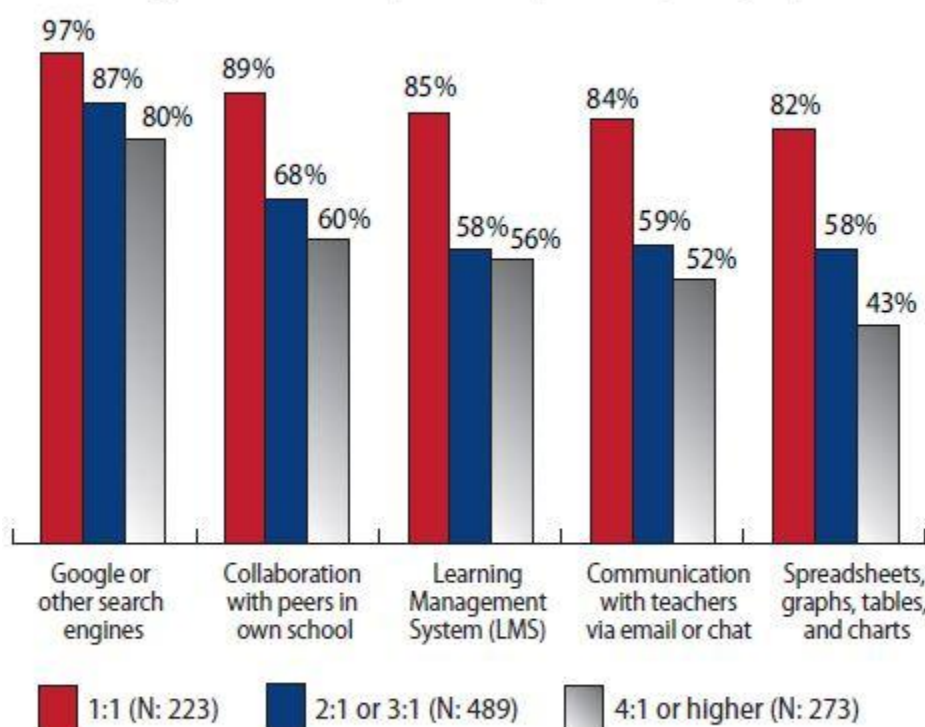
Percentage of Respondents

**Table 4.1. Principal's expectations for technology use**

Category	Daily Use (%)	Weekly Use (%)	Monthly/Semester Use (%)	Not at All (%)
Spreadsheets, graphs, tables, and charts	22	37	35	5
Social media (e.g., blogs, tweets, wikis)	21	21	23	35
Student response systems (including clickers)	18	27	33	22
Collaboration with peers in any school	16	18	41	25
Online formative assessments	14	28	45	13
Online summative assessments	11	21	52	15
Virtual field trips	7	16	61	16

**Chart 4.2. How frequently do you expect your students to use technology in the following activities? (Q17)**

Technology Tools Used: Top 5 Principal's Frequency Expectations



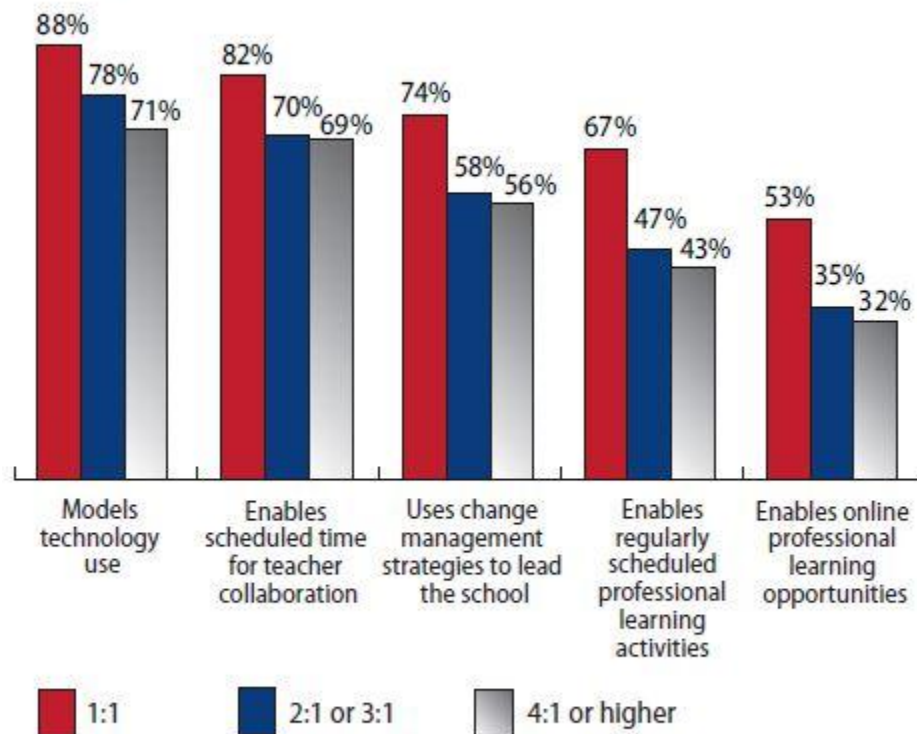
Percentage of Respondents by Student-Computer Ratio  
Responding at Least Weekly

**Table 4.2. Principal's expectations for student weekly use by student-computer ratio**

Category	1:1 (%)	2:1 or 3:1 (%)	4:1 or Higher (%)
Games and simulations	75	62	62
Online formative assessments	62	40	28
Social media (e.g., blogs, tweets, wikis)	61	38	32
Student response systems (including clickers)	53	46	37
Online summative assessments	46	31	23
Collaboration with peers in any school	41	33	28
Virtual field trips	32	20	20

**Chart 4.8. Describe the principal's role as the leader of the technology Initiative. (Q20)**

Principal's Leadership in Technology Initiative

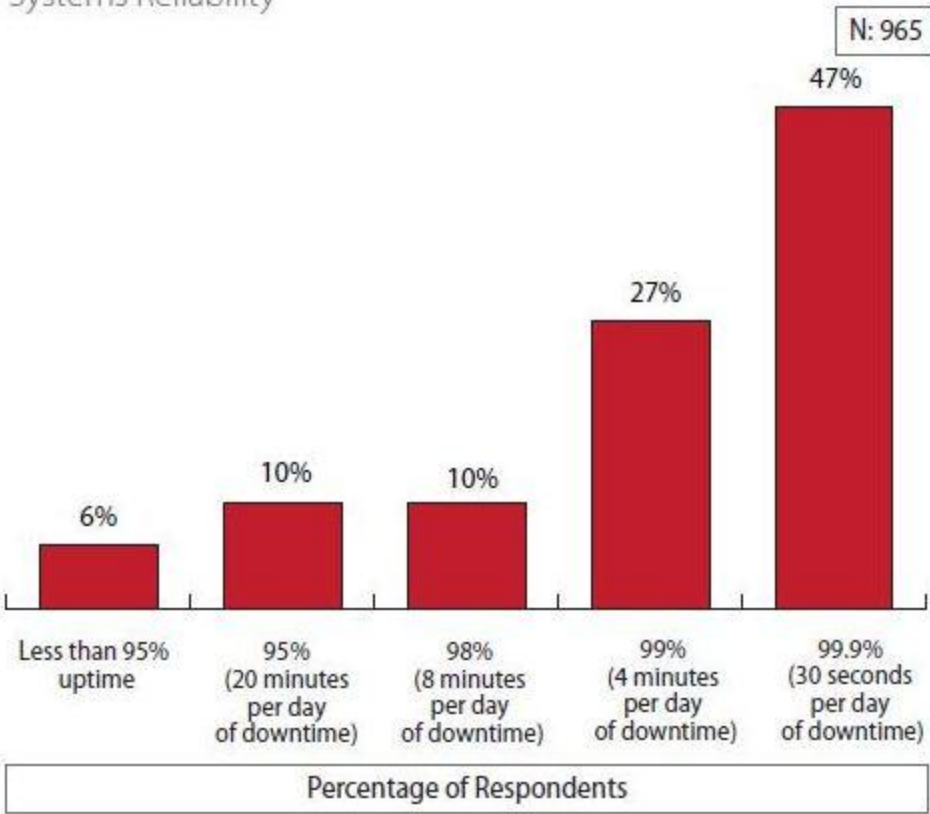


Percentage of Respondents by Student-Computer Ratio Reporting at Least Monthly



Chart 5.6. On average over the past year, what percentage of the school day is your instructional network up for student and teacher use? (Q23)

Systems Reliability



**Chart 5.7. On average over the past year, what percentage of the school day is your instructional network up for student and teacher use? (Q23)**

Systems Reliability of Instructional Network

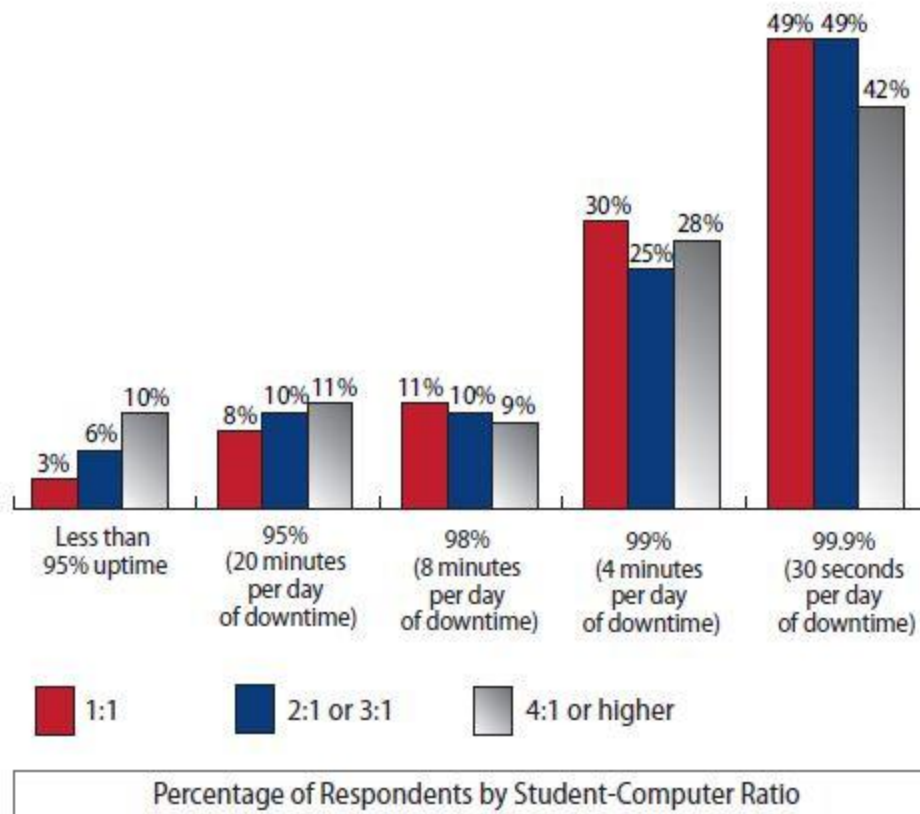
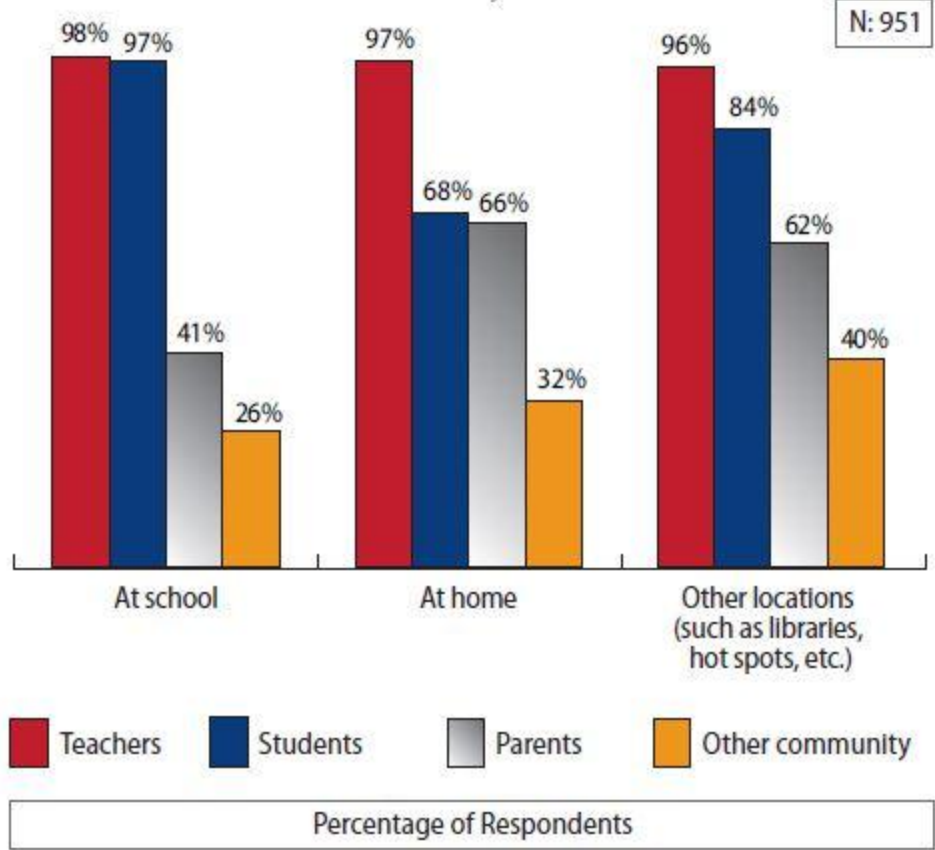




Chart 5.8. Is your instructional network accessible to teachers, students, and parents? (Q24)

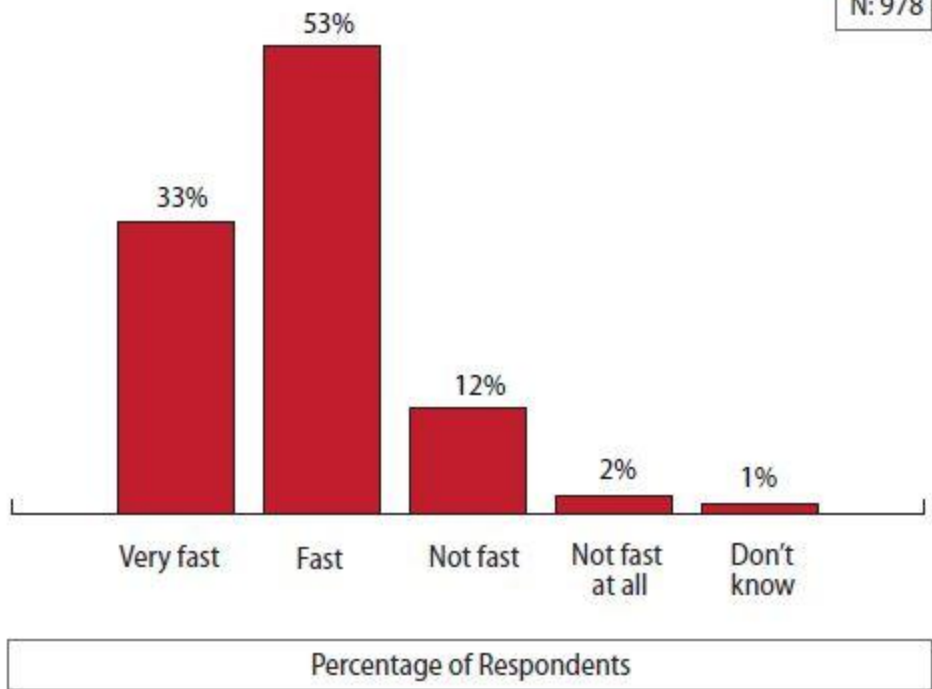
Instructional Network Accessibility



**Chart 5.12. How fast Is the speed of your Internet connection to your classrooms? (Q25)**

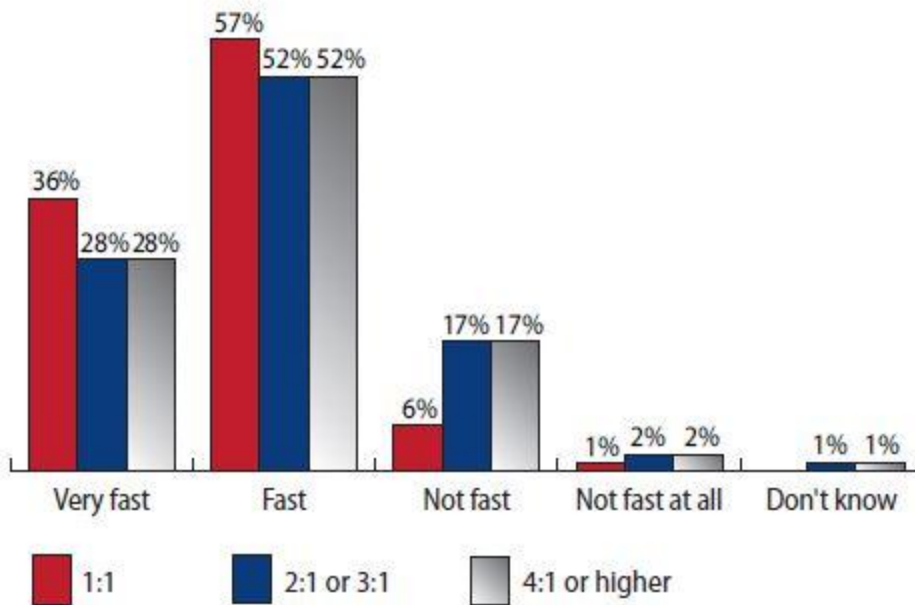
Speed of Internet Connection

N: 978



**Chart 5.13. How fast is the speed of your Internet connection to the classroom? (Q25)**

Speed of Network

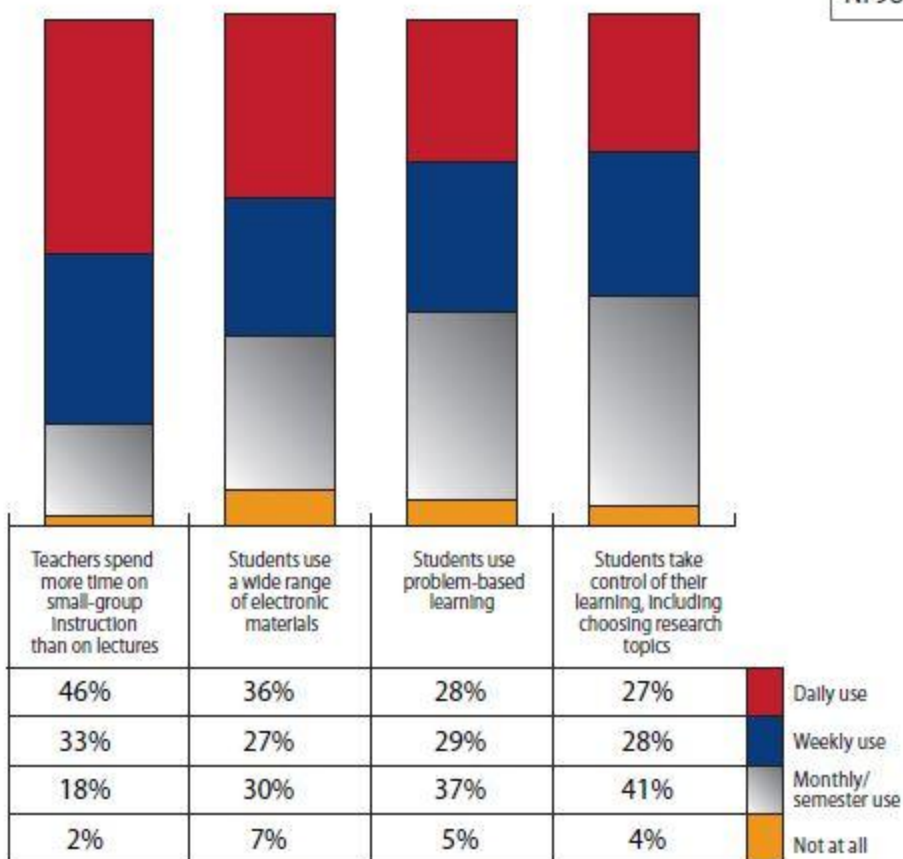


Percentage of Respondents by Student-Computer Ratio

Chart 6.1. How do teachers and students in your school use technology in instruction? (Q16)

Learning Activities: Frequency of Use

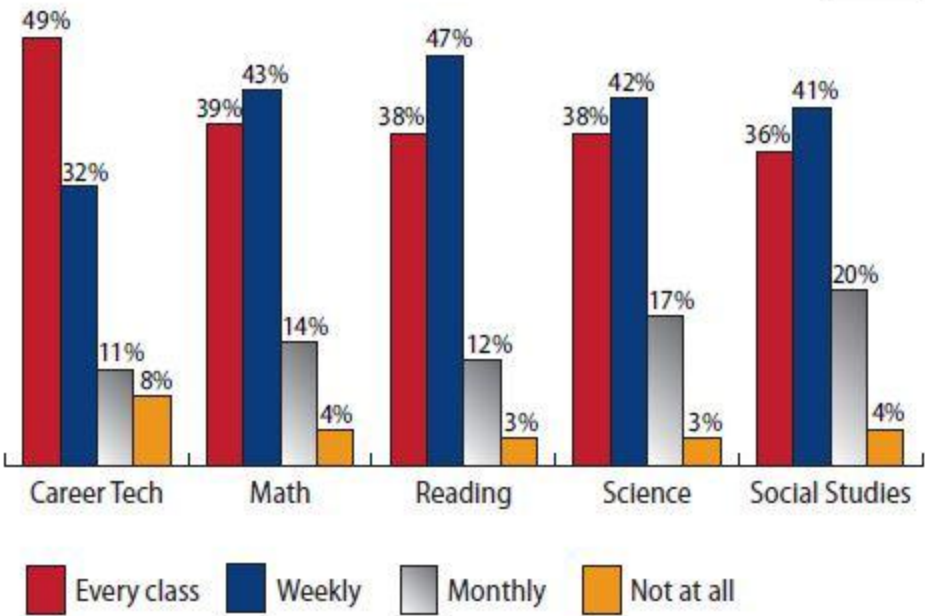
N: 988



Percentage of Respondents

Chart 6.3. How frequently do your students use technology as an integral part of instruction? (Q9)

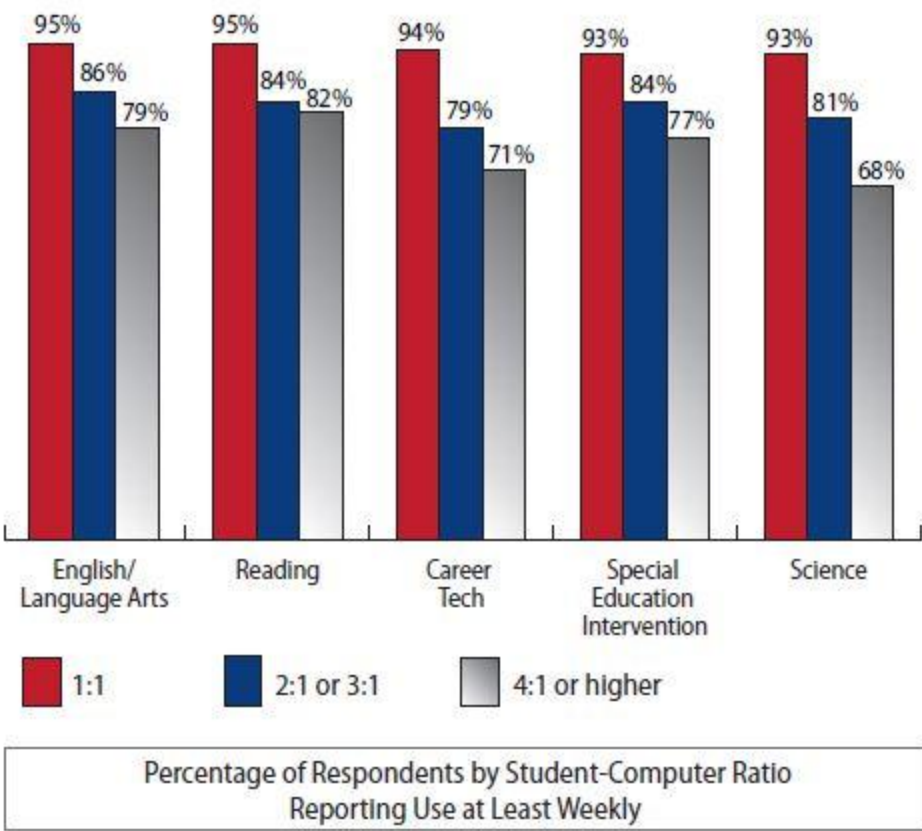
N: 995



Percentage of Respondents

**Chart 6.4. How frequently do your students use technology as an integral part of instruction? (Q9)**

Technology Integration by Subject Area: Top 5



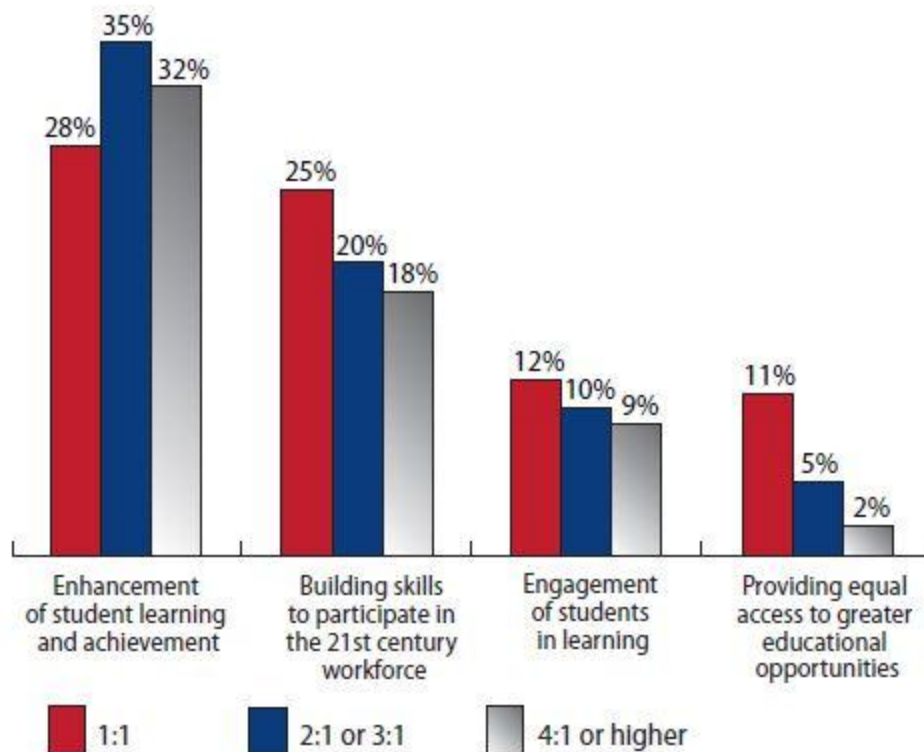
**Table 6.2. Findings for lower-ranked weekly use of technology by subject and student-computer ratio (In rank order)**

<b>Subject</b>	<b>1:1 (%)</b>	<b>2:1 or 3:1 (%)</b>	<b>4:1 or Higher Ratio (%)</b>
Math	91	80	77
Social Studies	91	76	67
Title I Intervention	90	81	75
ELL Intervention	88	73	63
Reading Intervention	87	81	73
World Languages	81	63	51
Art	66	46	37
Music	56	40	35
Health/PE	54	26	8



### Chart 6.6. What was the original Impetus for your technology Initiative? (Q10)

Impetus for Technology Initiative: Top 4 Reasons

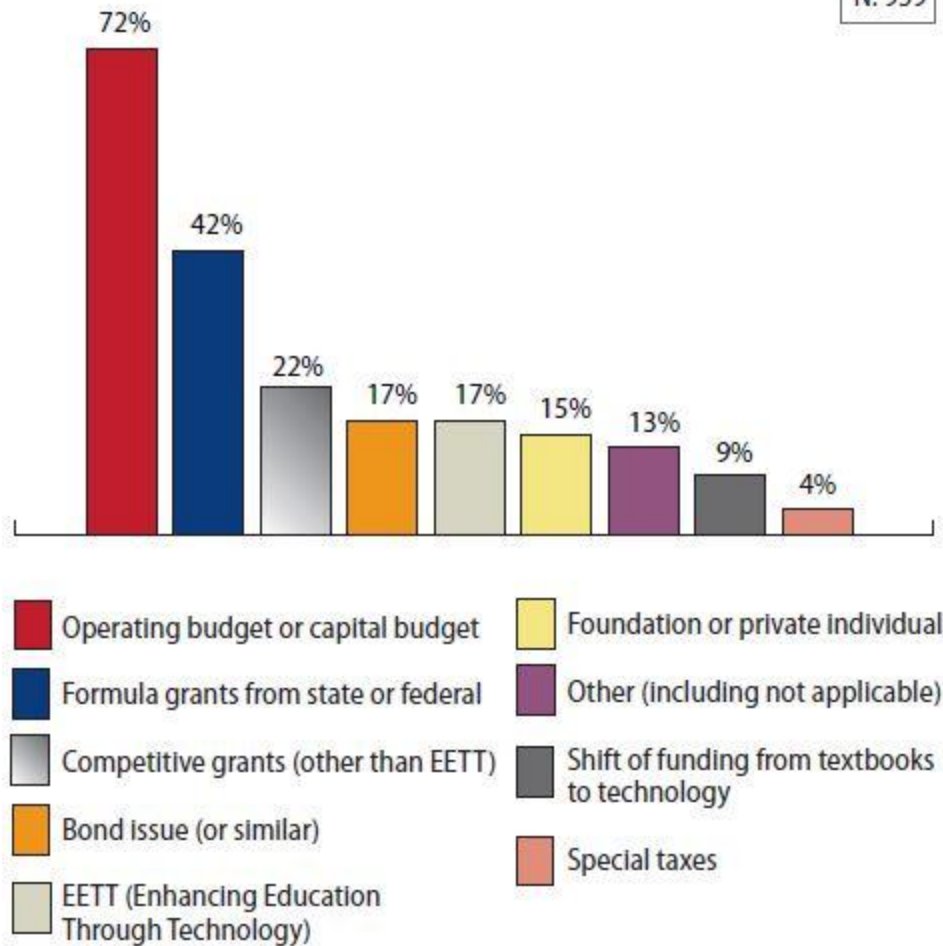


Percentage of Respondents by Student-Computer Ratio  
Only One Answer Allowed

**Chart 6.7. How was your technology initiative funded? Check all that apply. (Q11)**

Funding Sources for Technology Initiative

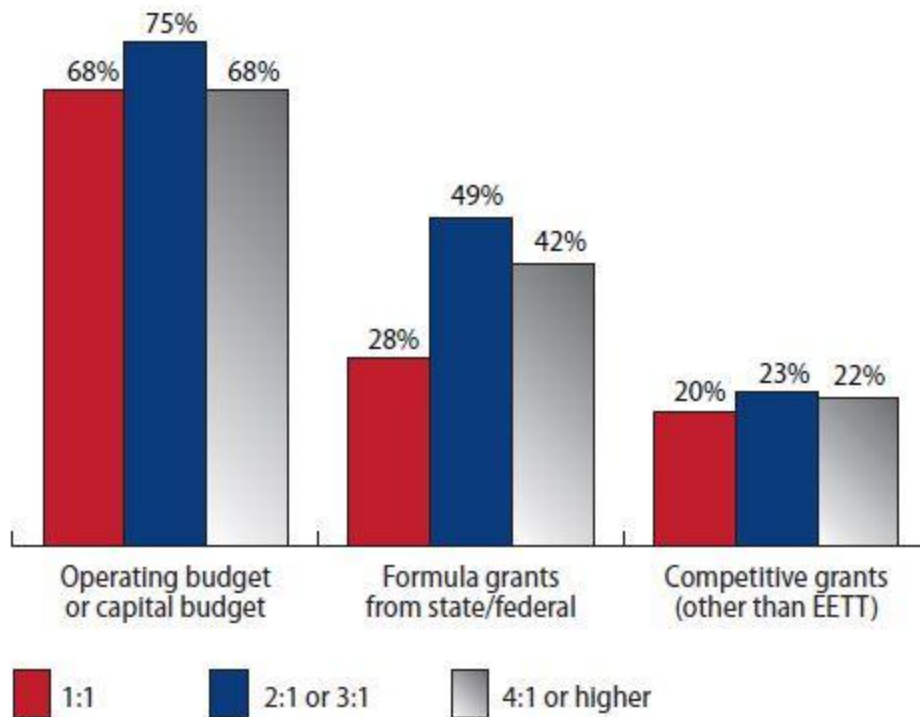
N: 959



Percentage of Respondents – Multiple Answers Allowed  
(Average of 2.1 answers per respondent)

**Chart 6.8. How was your technology initiative funded? Check all that apply. (Q11)**

Funding Sources for Tech Initiative



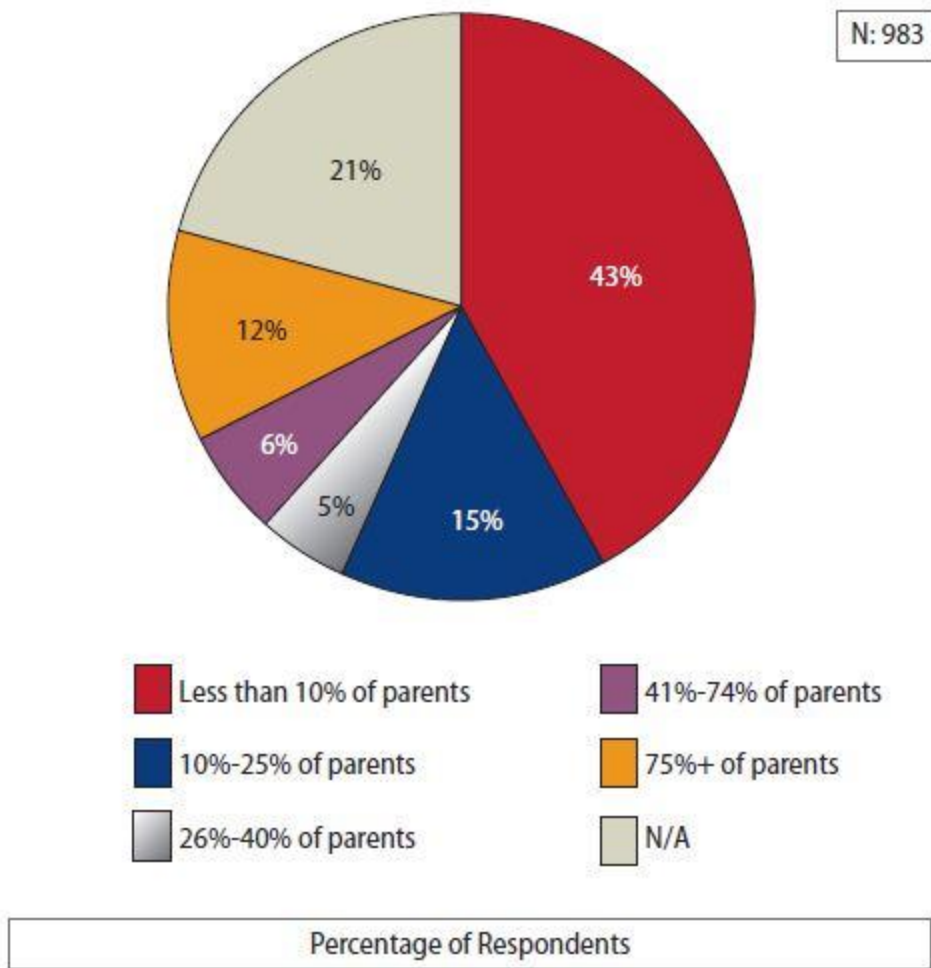
Percentage of Respondents by Student-Computer Ratio  
Multiple Answers Allowed (Average of 2.1 answers per respondent)

**Table 6.5. Funding sources for tech Initiative**

Funding Source	1:1 (%)	2:1 or 3:1 (%)	4:1 or Higher (%)
Operating budget or capital budget	68	75	68
Formula grants from state/federal	28	49	42
Competitive grants (other than EETT)	20	23	22
Bond issue (or similar)	14	17	19
Shift of funding from textbooks	13	9	6
EETT	11	20	15
Foundation or private individual	10	16	16
Special taxes	4	5	3

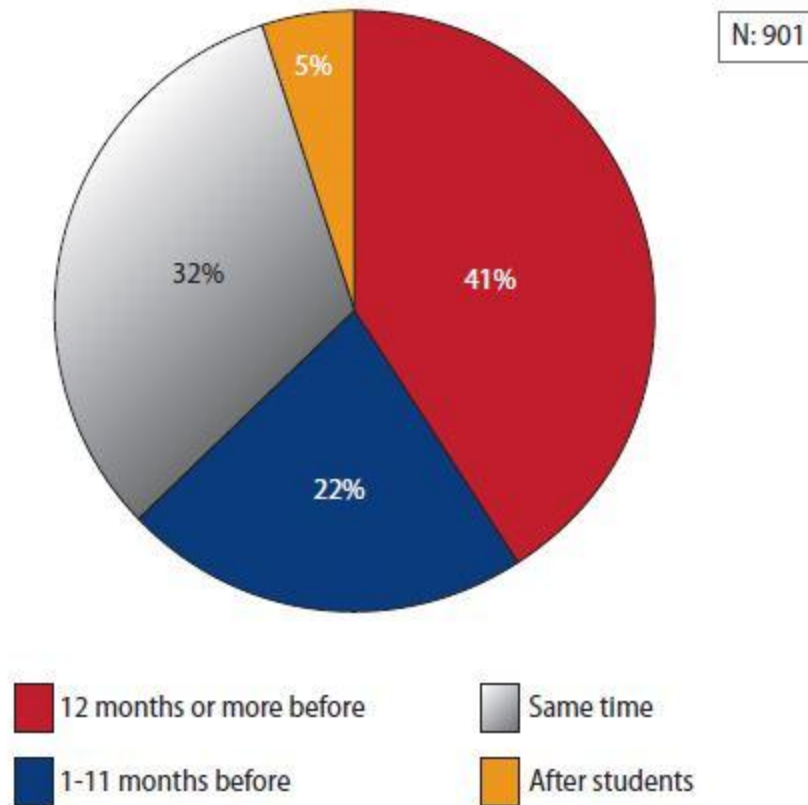
**Chart 6.9. Indicate what percentage of parents participated in face-to-face meetings or training on their role in helping the technology initiative. (Q12)**

Parental Participation: Meetings or Training on Technology Initiative



**Chart 6.11. Indicate when teachers were Issued a computing device as compared with students. (Q13)**

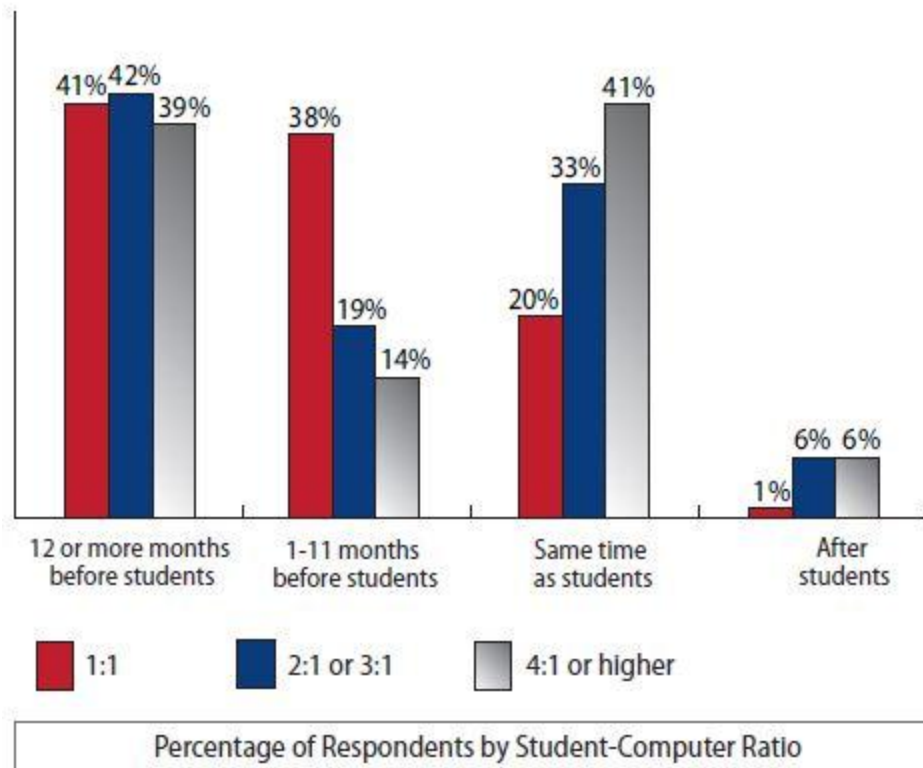
Teacher Access to Computers Compared With Student Access



Percentage of Respondents

**Chart 6.12. Indicate when teachers were Issued a computing device as compared with students. (Q13)**

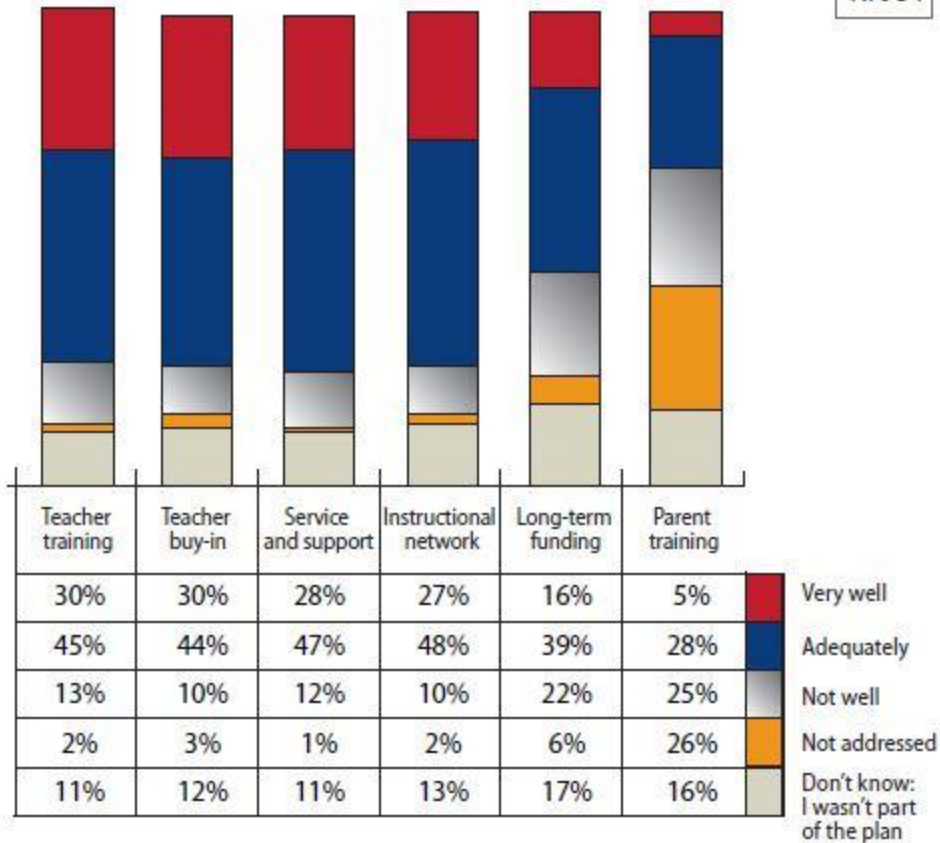
Timing of Teachers Receiving Computing Device



**Chart 6.13. How well did your technology implementation plan address each of the following? (Q14)**

Assessing the Technology Plan's Effectiveness

N: 984

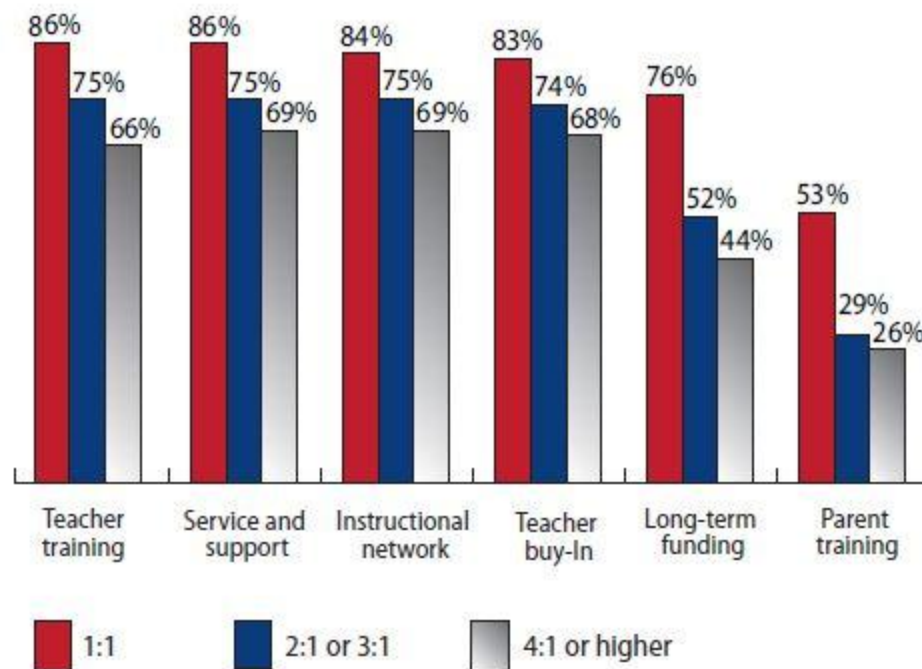


Percentage of Respondents



**Chart 6.14. How well did your technology Implementation plan address each of the following? (Q14)**

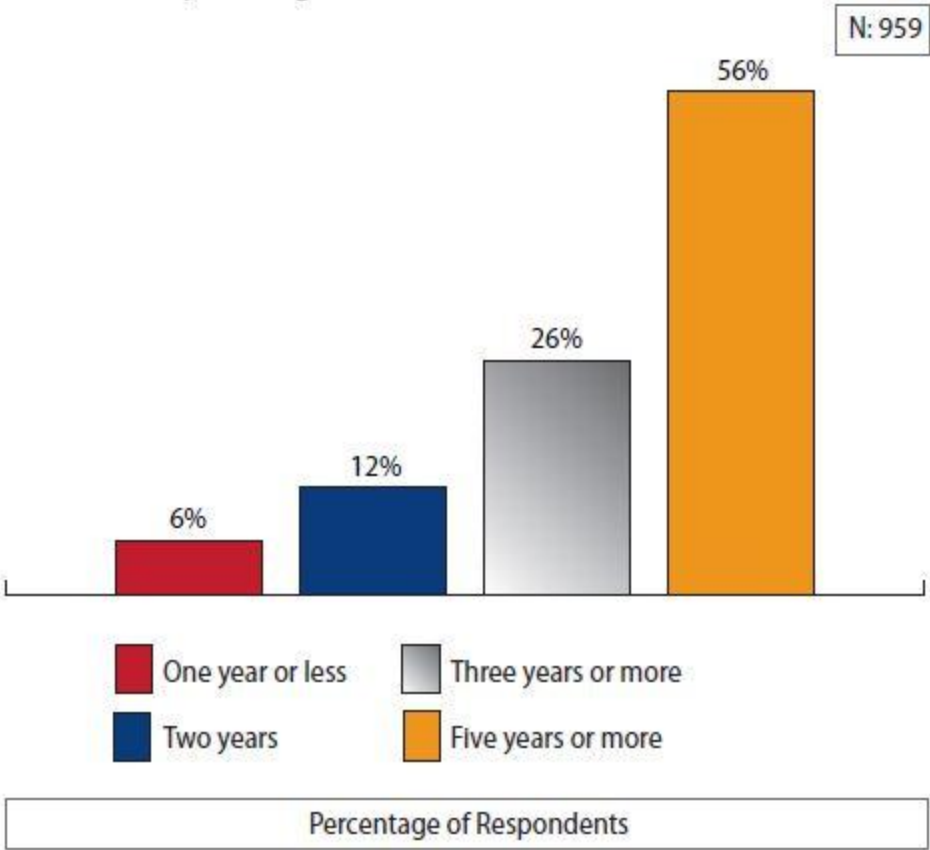
Implementation of Tech Initiative



Percentage of Respondents by Student-Computer Ratio  
Reporting Very Well or Adequately

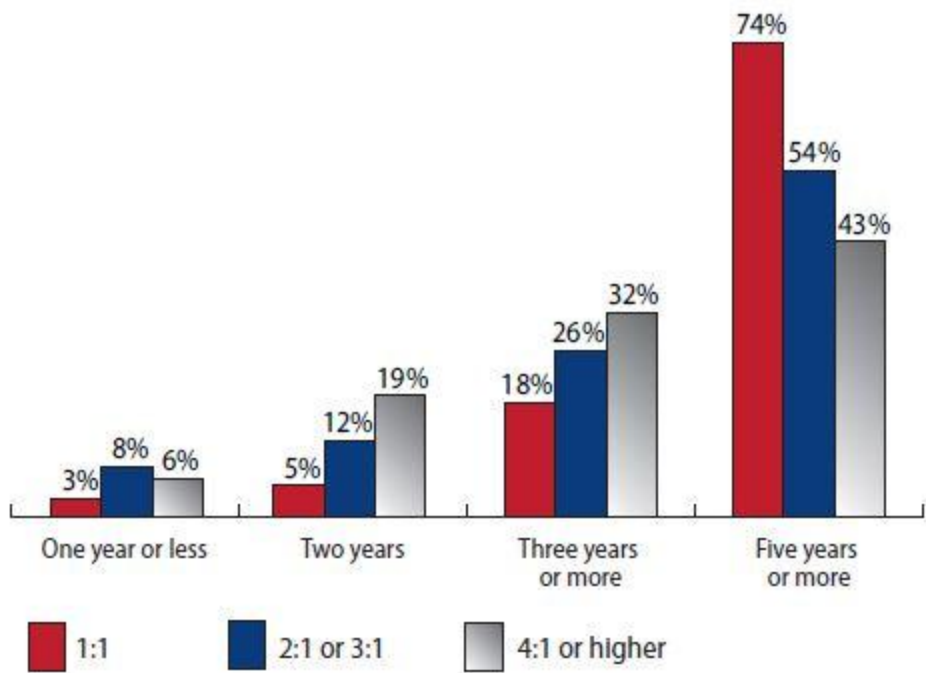
**Chart 6.15. For how long do you think your program is sustainable? (Q15)**

Sustainability of Program



**Chart 6.16. For how long do you think your program is sustainable? (Q15)**

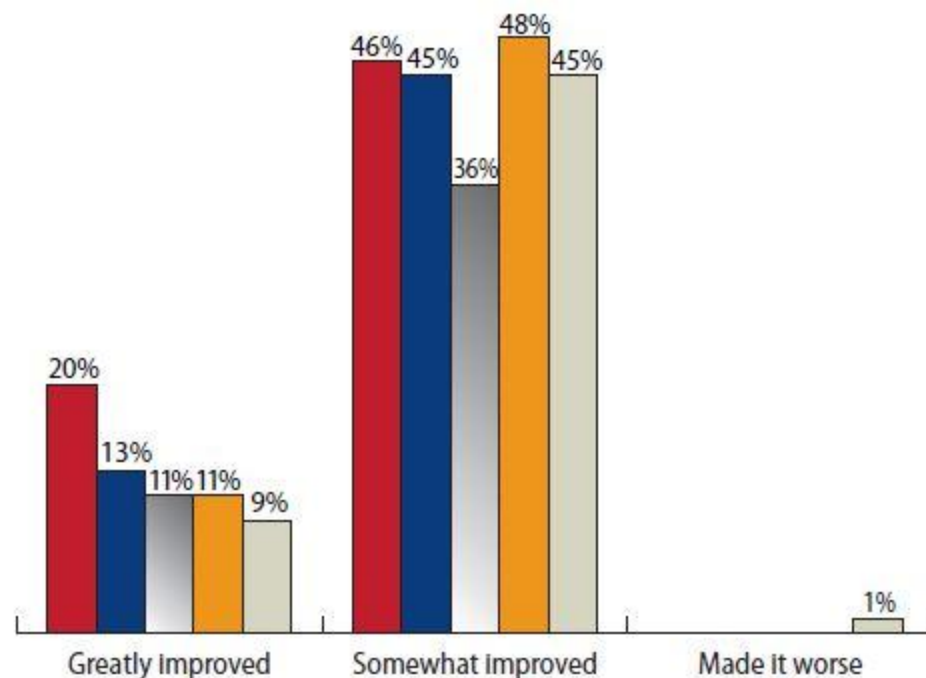
Sustainability of Tech Initiative



Percentage of Respondents by Student-Computer Ratio

**Chart 7.2. How has ubiquitous technology changed the following? (Q26)**

Impact of Technology in Schools: High Schools Only



■ Dual/joint enrollment in college increase (high schools only)

■ College attendance plans increase (high schools only)

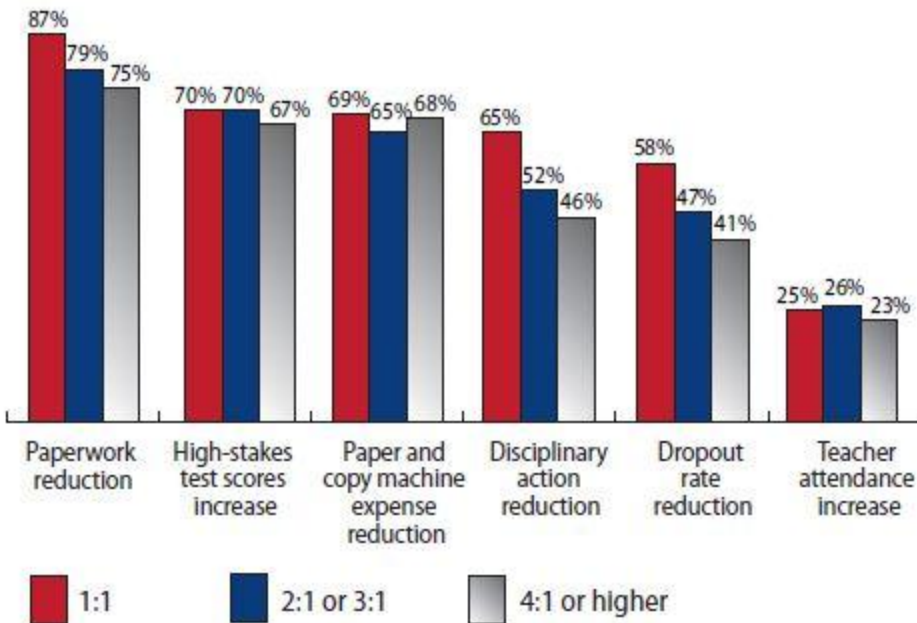
■ AP course enrollment increase (high schools only)

■ Course completion rates increase (high schools only)

■ Graduation rates increase (high schools only)

### Chart 7.3. How has ubiquitous technology changed the following? (Q26)

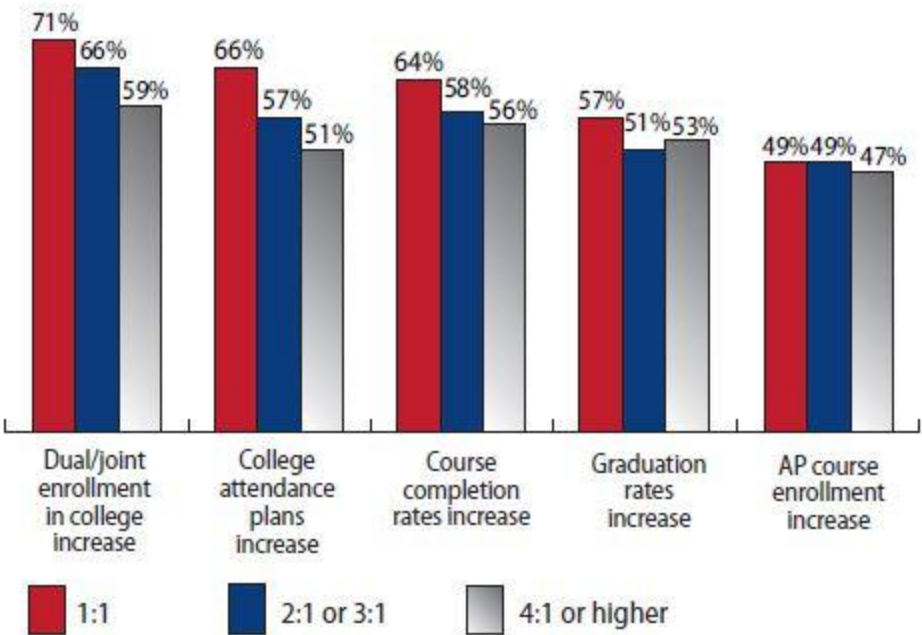
Improvements Due to Technology Deployment:  
All Schools by Student-Computer Ratio



Percentage of Respondents by Student-Computer Ratio  
Reporting Improvement

**Chart 7.4. How has ubiquitous technology changed the following? (Q26)**

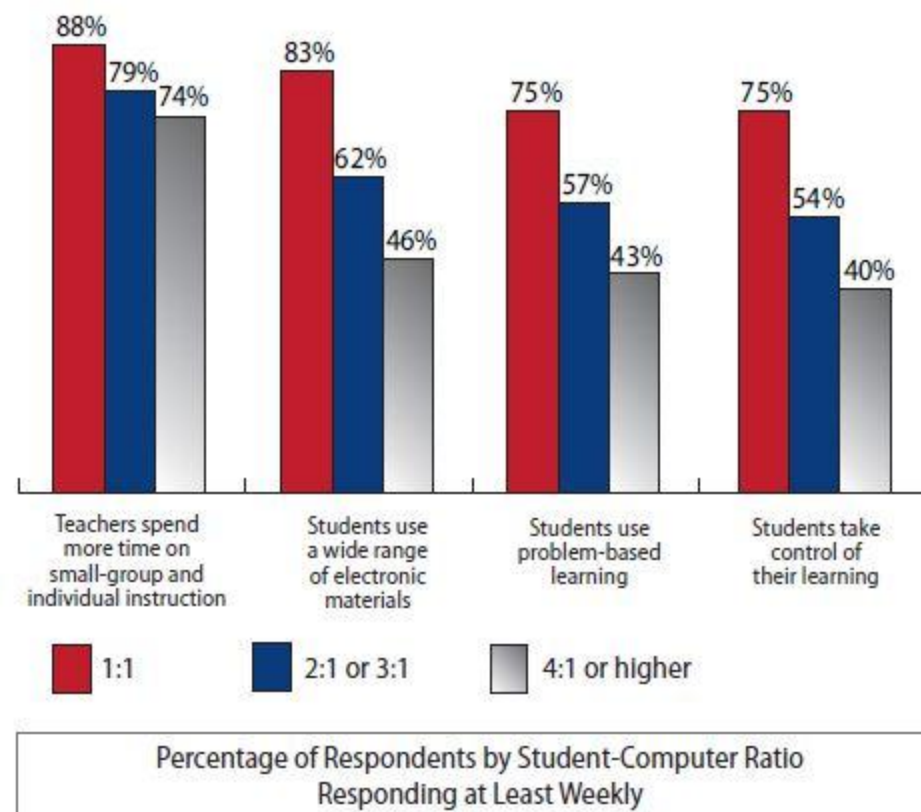
Improvements Due to Technology Deployment:  
High Schools by Student-Computer Ratio



Percentage of Respondents by Student-Computer Ratio  
With High School Grades Reporting Improvement

### Chart 8.1. How do teachers and students in your school use technology in instruction? (Q16)

Learning Activities: Students and Teachers



### Table 8.1. Drivers of Improving high-stakes test scores

High-Stakes Test Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	24.6
Instructional Network Available at Home and LMS Daily	19.8
Principal Training Exists	14.1
Daily Games, Social Media	13.1
Principal's Role in Technology	11.6
Online Assessments	8.7





**Table 8.2. Drivers of Improving discipline**

Discipline Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	24.4
Collaboration Between Students	22.1
Daily Use of Technology in Core Classes	15.4
Principal Training Exists	11.7
Virtual Field Trips	6.3
Tech Implementation Effectiveness	5.3



**Table 8.3. Drivers of Improving dropout rates**

Dropout Rate Improvement by Predicted Model Quintile

Description	Relative Importance
Technology in Intervention Classes	32.6
Weekly External Collaboration	14.2
Daily Use in Technology Core Classes	13.1
Principal's Role in Technology	10.9
Daily Games, Social Media	9.6
Virtual Field Trips	9.2



**Table 8.5. Use of electronic materials**

Student-Computer Ratio	% of Respondents Reporting That Students Use a Wide Range of Electronic Materials <sup>3</sup>
1:1	83
2:1 or 3:1	62
4:1 or higher	46

**Table 8.6. Drivers of Improving graduation rates**

Graduation Rate Improvement by Predicted Model Quintile

Description	Relative Importance
Monthly Collaboration With Students Outside School	17.4
Technology Intervention Classes	15.4
Daily Search Engines	13.4
Instructional Network Available at Home	9.9
Frequent Virtual Field Trips	9.5
Daily Communication Via Technology	9.4



**Table 8.7. Use of problem-solving skills**

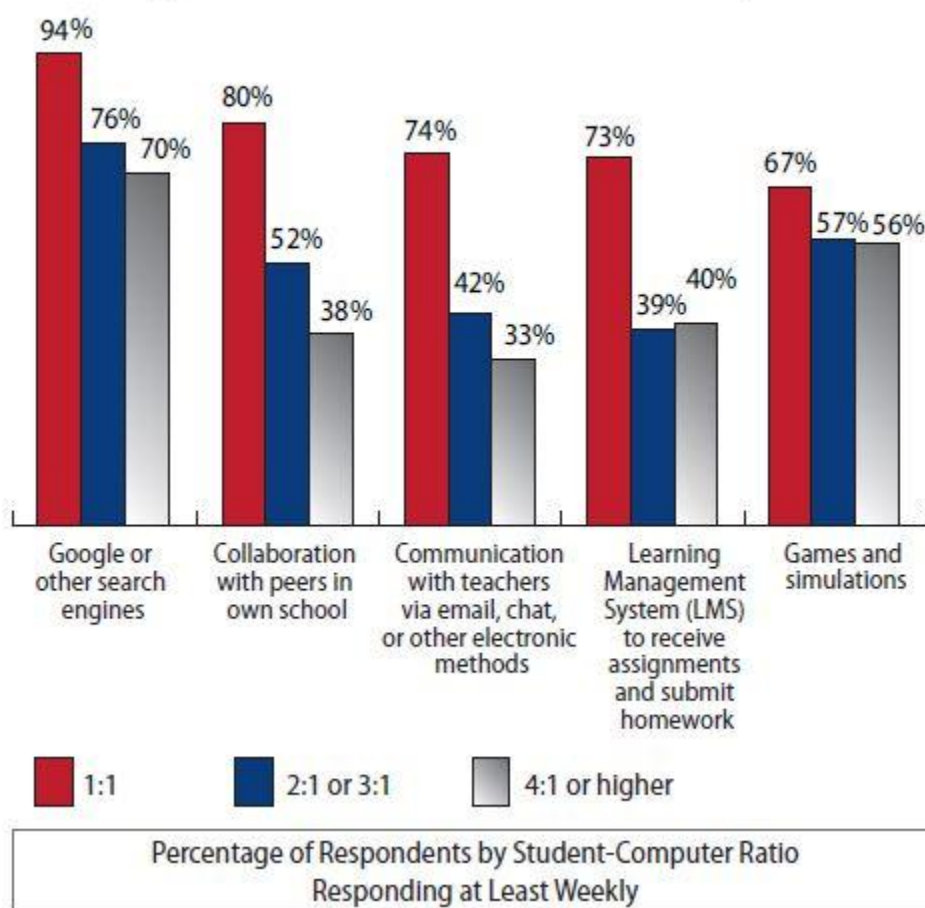
Student-Computer Ratio	% of Respondents Reporting That Students Use Problem-Based Learning
1:1	75
2:1 or 3:1	57
4:1 or higher	43

**Table 8.8. Email and chat with teachers**

Student-Computer Ratio	% of Respondents Reporting Student Communication With Teachers Via Email and Chat
1:1	74
2:1 or 3:1	42
4:1 or higher	33

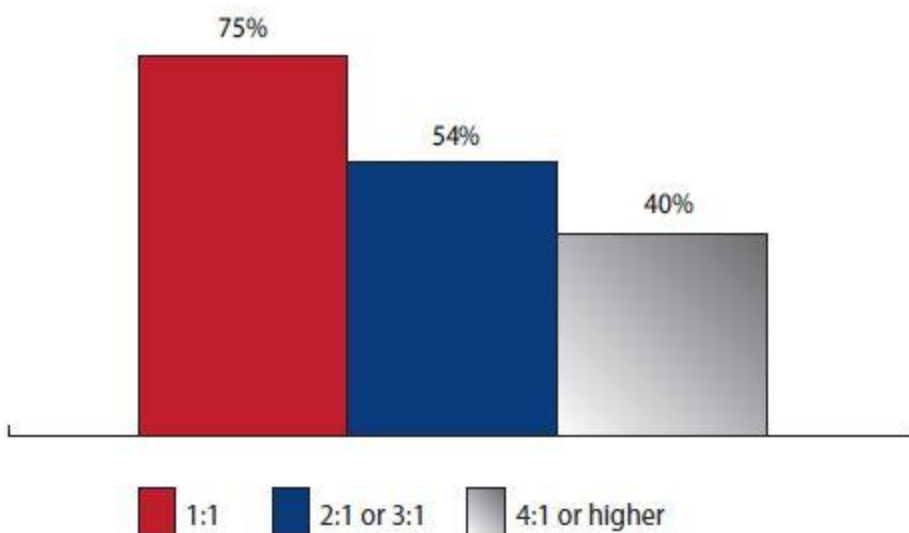
**Chart 8.2. How frequently do students actually use technology in the following activities? (Q18)**

Technology Tools Used: Actual Use Estimated – Top Five



**Chart 8.3. Indicate how teachers and students in your school use technology in instruction. (Q16)**

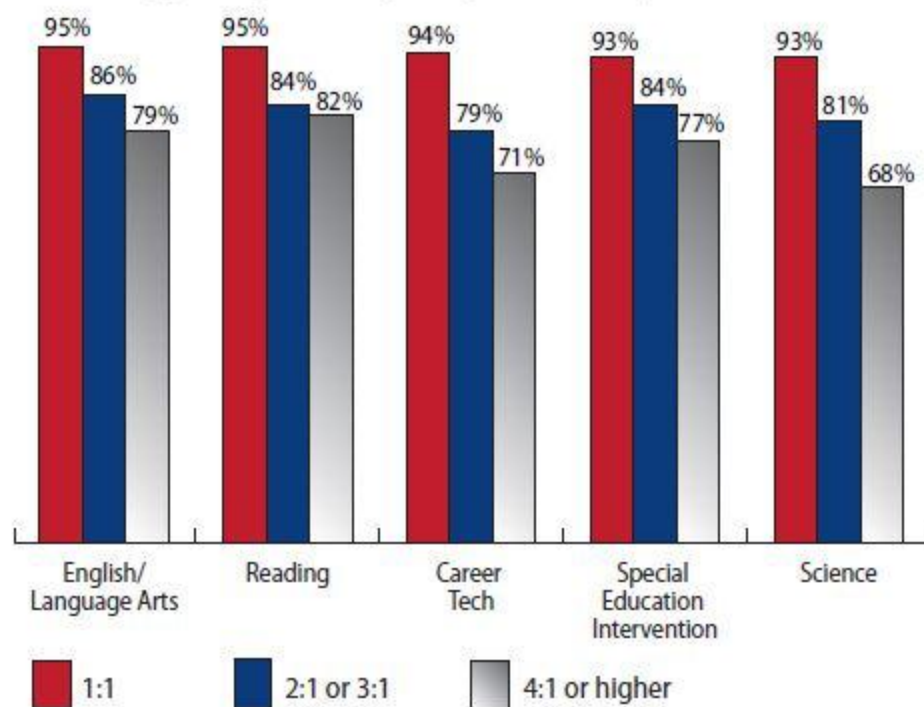
Students Take Control of Their Learning



Percentage of Respondents by Student-Computer Ratio  
Reporting at Least Weekly

### Chart 8.4. How frequently do your students use technology as an integral part of instruction? (Q9)

Technology Integration by Subject Area: Top 5



Percentage of Respondents by Student-Computer Ratio  
Reporting Use at Least Weekly